

METHOD AND APPARATUS FOR ACCESSING DATABackground of the invention

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The present invention relates to accessing data on computer networks, and more particularly to accessing such data via remote terminals.

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Browsing the Internet and private Intranets via both personal computers and mobile telephones is common place. Typically, a user browses the Internet by connecting, via a telecommunications network to an Internet service provider (ISP). The ISP provides connection to the Internet, which allows the user to request data (for example, when an address or a hyperlink is followed), and allows the user to send data to an Internet site (for example, sending credit card details, personal preferences etc). Connection to an ISP is usually made through a telecommunications link which remains open whilst the user is browsing the Internet. The telecommunications link remains open even when the user is not actually sending or receiving data. For example, after a user has received a specific page from an Internet site, the connection is maintained even though the user may be reading that page. The connection is only terminated by the user at the end of a browsing session. Whilst the connection is maintained, a user is typically charged for the communications. Charges are typically levied either according to the length of time the telecommunications link remains open, or on the amount of data downloaded via the telecommunications network.

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Browsing Internet sites consumes a large amount of bandwidth, since many Internet pages contain large amounts of high quality graphics and textual data. With personal computers, the bandwidth-hungry nature of browsing the Internet does not pose too much of a problem, since high speed modems and terminal adapters, such as ISDN, are readily and cheaply available. However,

the bandwidth available to mobile users via Internet-enabled mobile phones and the like, using for example the GSM standard, is much more limited.

5 The arrival of the so-called third generation mobile phones will bring improvements in the available bandwidth, however the bandwidth will still be limited compared to that available for personal computer users.

Accordingly, one aim of the present invention is to improve browsing on mobile terminals.

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Summary of the Invention

According to a first aspect of the present invention, there is provided a method of accessing information on a computer network on a communication device, the device being capable of communicating with a first communications network and receiving a signal from a second communications network, the method comprising: receiving, via the second network, unsolicited information from the computer network, wherein the information contains an identifier identifying further information on the computer network; requesting, via the first network, further information from the computer network, wherein the further information is based on the received identifier; and receiving the further information via one of the first or second networks.

25 According to a second aspect of the present invention, there is provided a communication device for accessing information on a computer network, the device capable of communicating with a first communications network and receiving a signal from a second communications network, the device comprising: a receiver for receiving, via the second network, unsolicited information from the computer network, wherein the information contains an identifier identifying further information on the computer network; a transceiver for requesting, via the first network, further information from the computer network, wherein the further information is based on the received identifier.

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The present invention provides many advantages, both to the user and to the service provider.

5 In order to encourage a user to visit a particular Internet site, the Internet site owner, through co-operation with a network service provider, may broadcast an amount of Internet data to many users. The Internet data may represent a so-called 'home page', be a number of Internet pages from an Internet site, or be a summary or site map of an Internet site. Those skilled in the art will
10 appreciate that other alternatives are also possible. By broadcasting such data many users may be reached in a cost-effective way.

A user, upon receiving the broadcast data may freely browse the received data and can then decide whether he wishes to go on-line to browse the
15 actual Internet site.

The user also benefits from this arrangement, since he may receive free data which he may browse at his leisure. If the data is of no interest, he simply ignores it. If the data is of interest, the user may quickly access the Internet
20 site. Only when the user goes on-line is he charged for accessing the information.

The Internet site owner may also benefit due to a higher number of users accessing his site, therefore increasing sales or advertising revenue. The
25 network provider may also benefit due to the increased number of calls being made to access the Internet.

Brief Description of the Drawings

30 The invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a block diagram showing how a mobile terminal 100 is connected to a computer network 116, such as the Internet, according to the prior art; and

Figure 2 is a block diagram showing a system according to a first embodiment
5 of the present invention.

Detailed description of the invention

Figure 1 is a block diagram showing how a mobile terminal 100 is connected
10 to computer network 116, such as the Internet, according to the prior art.

The mobile terminal 100 comprises an antenna 102 for transmitting signals to and receiving signals from a cellular network 112. The mobile terminal 100 comprises a transmitter/receiver module 104, which controls the transmission
15 and reception of data via the antenna 102. A controller 106 controls the function of the mobile terminal 100 to enable the mobile terminal to make and receive telephone calls, as well as to provide the functions required to enable the mobile terminal to be used for browsing the Internet 116. The mobile terminal 100 also comprises a display module 108, connected to the controller
20 106 for displaying information from the Internet or the cellular network to a user. A subscriber identification module (SIM) 110 is connected to the controller 106 to allow authentication of the user and other security functions which are well understood in the art.

25 In order to browse the Internet 116, the mobile terminal 100 must first make a point-to-point connection with a service provider 114, via the cellular network 112. The Internet service provider (ISP) 114 is connected to the Internet and acts to transmit data to and receive data from the mobile terminal 100 thereby allowing the mobile terminal to browse the Internet. Whilst browsing is taking
30 place, the connection between the mobile terminal 100 and the Internet service provider 114 must be maintained until the browsing session is

terminated. Typically, charges are levied by the cellular network for making the connection between the mobile terminal 100 and the service provider.

Browsing the Internet can be costly due to above-mentioned charges.

5 Moreover, browsing the Internet can be slow, due to bandwidth restrictions. This can be particularly frustrating if a user of a mobile terminal knows the location of the page of information in the Internet he wishes to browse, but in order to get to that page has to navigate from a home page through several sub-pages.

10 Figure 2 is a block diagram showing a system according to a first embodiment according to the present invention.

A mobile terminal 200 comprises an antenna 202 for transmitting signals to and receiving signals from a cellular network 212. Those skilled in the art will
15 appreciate that other telecommunications networks could be used in place of the cellular network without detracting from the inventive concepts described herein. Such cellular networks include, but are not limited to, GSM, EDGE, GPRS, and UMTS. Other such networks include fixed line telecommunications networks. The mobile terminal 200 comprises a
20 transmitter/receiver (transceiver) module 204, which controls the transmission and reception of data via the antenna 202. A controller 206 controls the function of the mobile terminal 200 to enable the mobile terminal to be able to make and receive telephone calls, as well as to provide the functions required to enable the mobile terminal to be used for browsing the Internet 216. The
25 mobile terminal 200 also comprises a display module 208, connected to the controller 206 for displaying information from the Internet to a user. A subscriber identification module (SIM) 210 is connected to the controller 206 to allow authentication of the user and other security functions, as will be apparent to those skilled in the art. The mobile terminal 200 further comprises
30 a second antenna 220 for receiving signals from a terrestrial digital video broadcasting (DVB-T) network 224. Those skilled in the art will appreciate that other forms of broadcast network would also be suitable, such as a DVB

satellite system. A DVB-T receiver 222 is connected to the antenna 220 for receiving and decoding DVB-T signals. The DVB-T receiver is also connected to the controller 206, whereby data received from the DVB-T network can be displayed via the display 208. A memory unit 218 is also connected to the controller 206 to allow storage of information received from either the DVB or the cellular network.

The mobile terminal 200 may browse the Internet 216 in the manner described above with reference to Figure 1, by connecting to an Internet service provider (ISP) 214 via a cellular telecommunications network 212.

The mobile terminal 200 may also receive Internet data broadcast via the DVB-T network 224. The user may browse the received Internet data and decide whether to make a connection to the Internet, via the cellular network, based on the received Internet data. The received Internet data may contain a so-called hyperlink, universal resource locator (URL) or other information which indicates the location of further information on a remote computer.

In a first embodiment, the connection to the Internet is established via the cellular network, for example as described above with reference to Figure 1. Requests for further information from the Internet are requested by the mobile terminal 200 via the cellular network 212. The requested information is sent to the mobile terminal also via the cellular network 212.

In a second embodiment, requests for further information are made by the mobile terminal via the cellular network, but the requested information is sent to the mobile terminal via the broadcast network. In certain situations it may be more economic to use the broadcast network for the transmission of data to the mobile terminal.

In this way, the initial data received via the broadcast network is used as a trigger to encourage a user to go on-line.

For example, a company may have an Internet site providing details of the company and a range of products or services on offer. In order to encourage users to access their Internet site the company, through co-operation with the
5 DVB network 244 operator, may arrange to have some Internet data broadcast via the DVB network to mobile terminals, such as 200. The Internet data broadcast may be the so-called home page of the Internet site, may be a summary of the Internet site, or even a site map of the Internet site with links allowing each section of the Internet site to accessed directly.

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The broadcast of the Internet data is preferably unsolicited and may be directed towards all mobile terminals, or may be specifically targeted to individual or groups of mobile terminals according to a database of user profiles. The database of user profiles may be used to identity users to whom
15 data is to be sent, which may be via point-to-point, multicast or broadcast transmissions. In this way, the Internet data may be transmitted to those users most likely to be interested in the Internet site of the company.

By being unsolicited data, the user does not have to actively do anything to
20 receive the data, as any unsolicited data is received automatically.

The unsolicited information may optionally contain a content identifier, which identifies the subject matter of the information. Additionally, each mobile terminal may be configured with a user defined filter to filter out unsolicited
25 information having a content identifier not defined by the user. For example, a user may define a set of subjects of interest, such as sport, leisure, finance, etc., and the mobile terminal will therefore filter out any unsolicited information which does not conform to the user preferences.

30 Given the high bandwidth of the DVB network the broadcast Internet data may be broadcast in a very quick and very cost-effective manner.

Once users have received the broadcast Internet data they may browse the data at will, free of charge. The data may be ignored or deleted if desired by the user. Alternatively, the user can decide to go on-line to access the full Internet site. In this way, the user only incurs charges when he has decided to go on-line.

Those skilled in the art will appreciate that, although the present invention is described with reference to the Internet, connections to other world-wide computer networks is also possible, as well as connection to private computer networks, such as corporate intranets etc. Additionally, reference to broadcast networks refers to any type of network which can provide the transport of multicast or broadcast data. Those skilled in the art will further appreciate that reference to mobile terminal is not limited to portable communication devices, and the present invention may suitably be implemented in fixed or home-based devices.